After this paper was presented to the Society, a method of reproducing stellar spectra from orthochromatic plates, corrected for the sensibility curve of the plate, was suggested by Mr. W. McKeon, Assistant at this Observatory. It promises well enough to be recommended to other workers in stellar spectrography.

The orthochromatic negative is screened, during the enlarging exposure, by a reversal of the *continuous* spectrum of the negative. The screen is obtained as a glass positive of the orthochromatic continuous spectrum of a coal-gas light filtered through a blue glass during part of the exposure.

Theoretically the perfect screen is the positive of the *star's* continuous spectrum, and of the same density as the stellar negative. It is therefore necessary to have in readiness a large number of screens varying both in the relative intensities of the blue and yellow impressions and in general density. When these are prepared and labelled, it is not difficult to select the suitable screen for producing an enlargement of fairly uniform intensity.

Comparison of the Forthcoming Greenwich Ten-Year Catalogue for 1890, *with certain Fundamental Catalogues.*

(*Communicated by the Astronomer Royal.*)

In the preparation of the Greenwich Ten-Year Catalogue for 1890, the reduction of the fundamental stars has been completed in advance of the rest of the catalogue, as Dr. Auwers wished to be furnished with the results for use in the preparation of his New Fundamental Catalogue. The positions for 1890·0, given by the Greenwich Observations 1887–1896, have been obtained for the fundamental stars in the two catalogues of stars contained in the *Berliner Jahrbuch*, and, as a check on the numerical accuracy of the reductions, a comparison of the Greenwich results has been made with the catalogues of fundamental stars given in the *Berliner Jahrbuch* (Auwers), *American Ephemeris* (Newcomb and Boss), and Professor Newcomb's "New Fundamental Catalogue" adopted in the *Nautical Almanac* for 1901, and at the same time the systematic differences have been obtained. As the Greenwich Catalogue will probably not be completed for a year, it is of interest to give briefly the result of these comparisons.

In the New Greenwich Ten-Year Catalogue the methods of reduction are similar to those of the Ten-Year Catalogue (1880). Although the observations of the Sun showed a correction to the equinox, the changes in the observers made it probable that this was largely caused by differences of personality in observations of the Sun, and it was therefore considered better to apply no correction, but to keep the same equinox as that adopted in the 1880 Catalogue. The adopted colatitude and refractions are the same as in the 1880 Catalogue.

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The Catalogues with which comparison has been made are—

(1) The Catalogue of 622 stars of the *Berliner Jahrbuch.* The places of these stars are based on Dr. Auwers' Fundamental Catalogue for the Zone Observations of the *Astronomische Gesellschaft.*

(2) The Catalogue of 303 stars given in the *Berliner Jahrbuch,* which is taken from Dr. Auwers' Fundamental Southern Catalogue for the Zone Observations of the *Astronomische Gesellschaft* between −2° and −23°. This Catalogue, with an account of the observations on which it depends (mainly those of southern observatories) is given in *Ast. Nach.*, 1890–91.

(3) The *American Ephemeris.* The positions are derived from Professor Newcomb's Fundamental Right Ascensions and Professor Boss's Declinations.

(4) Professor Newcomb's New Fundamental Catalogue, which is adopted in the *Nautical Almanac* for 1901, but is not yet published. The places have been obtained from a manuscript copy supplied by the Superintendent of the *Nautical Almanac.*

Differences in Order of Right Ascension.

R.A.	Greenwich—B.J.		No. of Stars.	Greenwich—"303"		No. of Stars.	Greenwich—A.E.		No. of Stars.	Greenwich—Newc.		No. of Stars.
	R.A.	N.P.D.		R.A.	N P.D.		R.A.	N.P.D.		R.A.	N.P.D.	
h h	s	"		s	"		s	"		s	"	
0 to 1	−·042	+0·21	9	−·028	+0·73	7	−·039	+0·25	9	−·071	+0·27	12
1 ,, 2	−·033	−0·28	9	−·020	+0·39	7	−·050	+0·06	7	−·058	+0·19	9
2 ,, 3	−·028	+0·23	10	−·018	+0·57	9	−·049	−0·02	10	−·056	+0·19	12
3 ,, 4	−·024	+0·02	13	−·036	+0·54	8	−·037	−0·13	10	−·057	+0·21	13
4 ,, 5	−·031	+0·04	7	−·034	+0·61	7	−·042	+0·02	6	−·050	+0·17	10
5 ,, 6	−·017	−0·06	12	−·003	+0·76	13	−·032	+0·04	9	−·051	+0·21	18
6 ,, 7	−·045	+0·17	10	−·040	+1·14	9	−·045	+0·03	9	−·058	+0·36	14
7 ,, 8	−·033	+0·15	9	−·055	+1·06	4	−·039	−0·01	6	−·052	+0·26	11
8 ,, 9	−·036	+0·36	7	−·025	+1·07	4	−·053	+0·23	6	−·063	+0·37	9
9 ,, 10	−·027	+0·15	8	−·015	+0·78	6	−·029	+0·11	7	−·053	+0·29	10
10 ,, 11	−·031	+0·28	11	−·037	+0·80	8	−·046	+0·11	5	−·056	+0·30	9
11 ,, 12	−·024	+0·03	9	−·014	+0·62	7	−·036	+0·04	7	−·053	+0·19	9
12 ,, 13	−·040	+0·23	3	−·021	+0·50	10	−·057	+0·18	7	−·056	+0·31	12
13 ,, 14	−·048	+0·22	4	−·021	+0·48	9	−·035	+0·03	5	−·051	+0·27	8
14 ,, 15	−·019	−0·17	8	−·025	+0·63	11	−·066	−0·13	7	−·053	+0·24	11
15 ,, 16	−·019	−0·01	13	−·021	+0·25	12	−·059	−0·01	7	−·051	+0·21	14
16 ,, 17	−·025	+0·34	8	−·023	+0·71	10	−·045	+0·35	5	−·051	+0·36	13
17 ,, 18	−·034	−0·26	7	−·010	+0·91	13	−·040	−0·10	7	−·053	+0·26	11
18 ,, 19	−·024	+0·12	11	−·030	+1·00	8	−·044	+0·15	7	−·047	+0·36	13
19 ,, 20	−·010	+0·22	10	−·012	+0·81	11	−·020	+0·18	7	−·045	+0·38	16
20 ,, 21	−·034	+0·11	10	−·008	+0·66	10	−·052	−0·03	7	−·058	+0·22	11
21 ,, 22	−·034	−0·03	10	−·009	+0·70	7	−·020	+0·01	7	−·046	+0·33	11
22 ,, 23	−·038	−0·07	12	−·021	+0·67	12	−·036	+0·19	8	−·062	+0·24	13
23 ,, 0	+·012	·00	6	−·021	+0·48	9	−·052	+0·57	3	−·054	+0·30	9

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Differences in Order of North Polar Distance.

N.P.D.	Greenwich—B.J. R.A.	Greenwich—B.J. N.P.D.	No. of Stars.	Greenwich—"303." R.A.	Greenwich—"303." N.P.D.	No. of Stars.	Greenwich—A.E. R.A.	Greenwich—A.E. N.P.D.	No. of Stars.	Greenwich-Newc. R.A.	Greenwich-Newc. N.P.D.	No. of Stars.
° °	s	"		s	"		s	"		s	"	
0 to 10	+·078	−·13	11	...	...	...	+·018	−0·13	4	+·289	+·02	8
10 ,, 20	−·054	−·09	43	...	...	...	−·043	−0·33	5	−·128	−·04	5
20 ,, 30	−·054	−·21	47	...	...	...	−·072	−0·04	5	−·075	+·11	10
30 ,, 40	−·032	−·13	34	...	...	...	−·036	−0·52	7	−·083	+·14	14
40 ,, 50	−·045	−·17	52	...	...	...	−·052	−0·22	12	−·062	+·11	15
50 ,, 55	−·034	+·24	27	...	...	...	−·065	−0·04	9	−·051	+·09	10
55 ,, 60	−·040	+·01	24	...	...	...	−·053	−0·10	12	−·042	+·10	13
60 ,, 65	−·037	−·17	31	...	...	...	−·062	−0·33	10	−·047	·00	19
65 ,, 70	−·023	+·11	28	...	...	...	−·045	+0·06	15	−·050	+·16	25
70 ,, 75	−·023	+·10	30	...	...	...	−·029	+0·05	9	−·058	+·11	19
75 ,, 80	−·023	+·16	28	...	...	...	−·045	+0·24	19	−·055	+·29	23
80 ,, 85	−·028	+·22	29	...	...	...	−·042	+0·07	20	−·060	+·36	30
85 ,, 90	−·010	−·02	20	−·013	+·47	23	−·034	+0·14	9	−·057	+·31	19
90 ,, 95	−·011	+·02	27	−·020	+·48	36	−·030	−0·02	12	−·057	+·30	24
95 ,, 100	−·023	+·12	23	−·018	+·70	44	−·037	+0·15	18	−·060	+·34	23
100 ,, 105	−·021	+·01	16	−·027	+·78	31	−·047	+0·02	8	−·060	+·49	14
105 ,, 110	−·034	−·01	24	−·023	+·79	44	−·048	+0·18	9	−·057	+·56	22
110 ,, 115	−·016	−·29	18	−·024	+·86	28	−·030	+0·43	6	−·056	+·50	19
115 ,, 120	+·004	−·26	13	−·012	+·94	3	−·017	+0·43	11	−·040	+·46	19

1898 *April* 6.

Observations of the companions of Sirius and Procyon, made at the Royal Observatory, Greenwich.

(Communicated by the Astronomer Royal.)

The cloudy weather prevented any observation of *Sirius* during the early part of the year, and it was not till Sunday, March 20, that there was a night sufficiently good for the companion to be seen. On this night the position was measured by Mr. Lewis, as follows:—

		Position Angle.	Distance.
March 20	1898·214	179°·2	4″·68

The companion was also seen by Mr. Bryant and Mr. Melotte, but they did not make any measures. The difficulty of measurement was not due to the faintness of the companion so much as to the diffused image of *Sirius* at the low altitude.